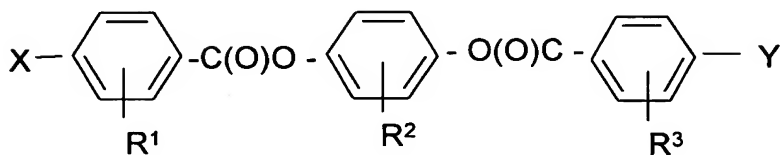


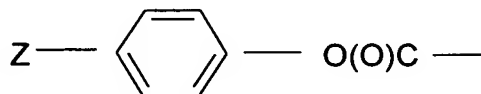
We Claim:

1. Mesogens having the following general formula:



wherein

X and Y independently are selected from the group consisting of amino groups, polymerizable groups, and groups having the following general structure:



wherein Z is selected from the group consisting of terminal functionalities and polymerizable groups; provided that when X is a polymerizable group, Y is an amino group;

R² is a bulky organic group having a bulk greater than R¹ and R³ whereby, when both X and Y are polymerizable groups, said bulk is adapted to provide sufficient steric hindrance to achieve a nematic state at room temperature while suppressing crystallinity at room temperature, thereby providing effective rheology and workability at room temperature; and R¹ and R³ are selected from groups less bulky than R² adapted to maintain said nematic state.

2. The mesogens of claim 1 wherein said polymerizable groups are selected from the group comprising a polymerizable unsaturated carbon-carbon bond.

3. The mesogens of claim 1 wherein said polymerizable groups are selected from the group consisting of acryloyloxy alkoxy groups and methacryloyloxy

3 alkoxy groups comprising an alkyl moiety having from 2 to 12 carbon atoms.

1 4. The mesogens of claim 3 wherein said alkyl moiety is selected from
2 the group consisting of alkyl groups consisting of CH₂ groups and alkyl groups
3 wherein one or more of said CH₂ groups comprises a substitute group selected from
4 the group consisting of oxygen, sulfur, and an ester group; provided that at least 2
5 carbon atoms separate said oxygen from said ester group.

1 5. The mesogens of claim 3 wherein said alkyl moiety consists essentially
2 of a total of from 2 to 9 groups selected from the group consisting of said CH₂ groups
3 and said substitute groups.

1 6. The mesogens of claim 3 wherein said alkyl moiety consists essentially
2 of a total of from 2 to 6 groups selected from the group consisting of said CH₂ groups
3 and said substitute groups.

1 7. The mesogens of claim 1 wherein R² is selected from the group
2 consisting of alkyl groups having from about 1 to 6 carbon atoms and aryl groups.

1 8. The mesogens of claims 1 wherein R² is selected from the group
2 consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups,
3 and phenyl groups, preferably selected from the group consisting of a methyl group
4 and a t-butyl group.

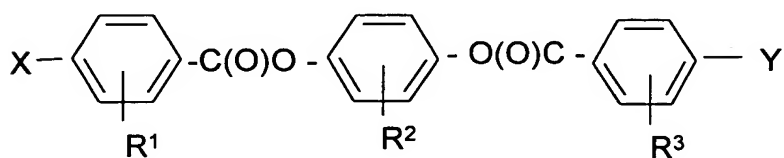
1 9. The mesogens of claims 3 wherein R² is selected from the group
2 consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups,
3 and phenyl groups, preferably selected from the group consisting of a methyl group
4 and a t-butyl group.

1 10. The mesogens of claim 8 wherein R and R³ are selected from the group
2 consisting of hydrogen and a methyl group.

1 11. The mesogens of any of claim 1 wherein said terminal functionalities
2 comprise spacer groups.

1 12. The mesogens of claim 1 wherein said terminal functionalities
2 independently are selected from the group consisting of hydroxyl groups, amino
3 groups, sulfhydryl groups.

1 13. Mesogens having the following general formula:



2
3 wherein

4 X and Y independently are selected from the group consisting of amino groups,
5 polymerizable groups; provided that when X is a polymerizable group, Y is an
6 amino group;

7 R² is a bulky organic group having a bulk greater than R¹ and R³ whereby, when both
8 X and Y are polymerizable groups, said bulk is adapted to provide sufficient
9 steric hindrance to achieve a nematic state at room temperature while
10 suppressing crystallinity at room temperature, thereby providing effective
11 rheology and workability at room temperature; and

12 R¹ and R³ are selected from groups less bulky than R² adapted to maintain said
13 nematic state.

1 14. The mesogens of claim 13 wherein said polymerizable groups are
2 selected from the group comprising a polymerizable unsaturated carbon-carbon bond.

1 15. The mesogens of claim 1 wherein said polymerizable groups are
2 selected from the group consisting of acryloyloxy alkoxy groups and methacryloyloxy

3 alkoxy groups comprising an alkyl moiety having from 2 to 12 carbon atoms.

1 16. The mesogens of claim 15 wherein said alkyl moiety is selected from
2 the group consisting of alkyl groups consisting of CH₂ groups and alkyl groups
3 wherein one or more of said CH₂ groups comprises a substitute group selected from
4 the group consisting of oxygen, sulfur, and an ester group; provided that at least 2
5 carbon atoms separate said oxygen from said ester group.

1 17. The mesogens of claim 16 wherein said alkyl moiety consists
2 essentially of a total of from 2 to 9 groups selected from the group consisting of said
3 CH₂ groups and said substitute groups.

1 18. The mesogens of claim 16 wherein said alkyl moiety consists
2 essentially of a total of from 2 to 6 groups selected from the group consisting of said
3 CH₂ groups and said substitute groups.

1 19. The mesogens of claim 13 wherein R² is selected from the group
2 consisting of alkyl groups having from about 1 to 6 carbon atoms and aryl groups.

1 20. The mesogens of claim 13 wherein R² is selected from the group
2 consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups,
3 and phenyl groups, preferably selected from the group consisting of a methyl group
4 and a t-butyl group.

1 21. The mesogens of claim 15 wherein R² is selected from the group
2 consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups,
3 and phenyl groups, preferably selected from the group consisting of a methyl group
4 and a t-butyl group.

1 22. The mesogens of claim 20 wherein R and R³ are selected from the
2 group consisting of hydrogen and a methyl group.

23. The mesogens of claim 21 wherein R and R³ are selected from the group consisting of hydrogen and a methyl group.

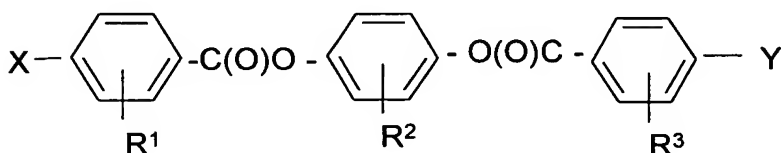
24. The mesogens of any of claim 13 wherein at least one of X or Y comprises a spacer group.

25. The mesogens of any of claim 23 wherein at least one of X or Y comprises a spacer group.

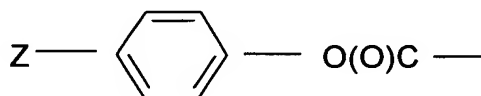
26. The mesogens of claim 13 wherein at least one of X or Y is selected from the group consisting of cinnamoyloxy groups.

27. The mesogens of claim 23 wherein at least one of X or Y is selected from the group consisting of cinnamoyloxy groups.

28. Mesogens having the following general formula:



wherein X and Y independently are selected from the group consisting of terminal functionalities and polymerizable groups, at least one of X and Y having the following general structure:



wherein Z is selected from the group consisting of terminal functionalities and polymerizable groups;

R² is a bulky organic group having a bulk greater than R¹ and R³ whereby, when both

X and Y are polymerizable groups, said bulk is adapted to provide sufficient

steric hindrance to achieve a nematic state at room temperature while

12 suppressing crystallinity at room temperature, thereby providing effective
13 rheology and workability at room temperature; and
14 R^1 and R^3 are selected from groups less bulky than R^2 adapted to maintain said
15 nematic state.

1 29. The mesogens of claim 28 wherein said terminal functionalities
2 independently are selected from the group consisting of hydroxyl groups, amino
3 groups, sulfhydryl groups, and spacer groups.

1 30. The mesogens of claim 28 wherein said terminal functionalities
2 comprise spacer groups.

1 31. The mesogens of claim 29 wherein said terminal functionalities
2 comprise spacer groups.

1 32. The mesogens of claim 28 wherein said polymerizable groups are
2 selected from the group comprising a polymerizable unsaturated carbon-carbon bond.

1 33. The mesogens of claim 29 wherein said polymerizable groups are
2 selected from the group comprising a polymerizable unsaturated carbon-carbon bond.

1 34. The mesogens of claim 30 wherein said polymerizable groups are
2 selected from the group comprising a polymerizable unsaturated carbon-carbon bond.

1 35. The mesogens of claim 31 wherein said polymerizable groups are
2 selected from the group comprising a polymerizable unsaturated carbon-carbon bond.

1 36. The mesogens of claim 28 wherein said polymerizable groups are
2 selected from the group consisting of acryloyloxy alkoxy groups and methacryloyloxy
3 alkoxy groups comprising an alkyl moiety having from 2 to 12 carbon atoms.

1 37. The mesogens of claim 29 wherein said polymerizable groups are
2 selected from the group consisting of acryloyloxy alkoxy groups and methacryloyloxy

3 alkoxy groups comprising an alkyl moiety having from 2 to 12 carbon atoms.

1 38. The mesogens of claim 30 wherein said polymerizable groups are
2 selected from the group consisting of acryloyloxy alkoxy groups and methacryloyloxy
3 alkoxy groups comprising an alkyl moiety having from 2 to 12 carbon atoms.

1 39. The mesogens of claim 31 wherein said polymerizable groups are
2 selected from the group consisting of acryloyloxy alkoxy groups and methacryloyloxy
3 alkoxy groups comprising an alkyl moiety having from 2 to 12 carbon atoms.

1 40. The mesogens of claim 36 wherein said alkyl moiety is selected from
2 the group consisting of alkyl groups consisting of CH₂ groups and alkyl groups
3 wherein one or more of said CH₂ groups comprises a substitute group selected from
4 the group consisting of oxygen, sulfur, and an ester group; provided that at least 2
5 carbon atoms separate said oxygen from said ester group.

1 41. The mesogens of claim 37 wherein said alkyl moiety is selected from
2 the group consisting of alkyl groups consisting of CH₂ groups and alkyl groups
3 wherein one or more of said CH₂ groups comprises a substitute group selected from
4 the group consisting of oxygen, sulfur, and an ester group; provided that at least 2
5 carbon atoms separate said oxygen from said ester group.

1 42. The mesogens of claim 38 wherein said alkyl moiety is selected from
2 the group consisting of alkyl groups consisting of CH₂ groups and alkyl groups
3 wherein one or more of said CH₂ groups comprises a substitute group selected from
4 the group consisting of oxygen, sulfur, and an ester group; provided that at least 2
5 carbon atoms separate said oxygen from said ester group.

1 43. The mesogens of claim 39 wherein said alkyl moiety is selected from
2 the group consisting of alkyl groups consisting of CH₂ groups and alkyl groups

3 wherein one or more of said CH₂ groups comprises a substitute group selected from
4 the group consisting of oxygen, sulfur, and an ester group; provided that at least 2
5 carbon atoms separate said oxygen from said ester group.

1 44. The mesogens of claim 43 wherein said alkyl moiety consists
2 essentially of a total of from 2 to 9 groups selected from the group consisting of said
3 CH₂ groups and said substitute groups.

1 45. The mesogens of claim 43 wherein said alkyl moiety consists
2 essentially of a total of from 2 to 6 groups selected from the group consisting of said
3 CH₂ groups and said substitute groups.

1 46. The mesogens of claim 26 wherein R² is selected from the group
2 consisting of alkyl groups having from about 1 to 6 carbon atoms and aryl groups.

1 47. The mesogens of claim 35 wherein R² is selected from the group
2 consisting of alkyl groups having from about 1 to 6 carbon atoms and aryl groups.

1 48. The mesogens of claim 39 wherein R² is selected from the group
2 consisting of alkyl groups having from about 1 to 6 carbon atoms and aryl groups.

1 49. The mesogens of claim 43 wherein R² is selected from the group
2 consisting of alkyl groups having from about 1 to 6 carbon atoms and aryl groups.

1 50. The mesogens of claim 45 wherein R² is selected from the group
2 consisting of alkyl groups having from about 1 to 6 carbon atoms and aryl groups.

1 51. The mesogens of claims 26 wherein R² is selected from the group
2 consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups,
3 and phenyl groups, preferably selected from the group consisting of a methyl group
4 and a t-butyl group.

1 52. The mesogens of claims 35 wherein R² is selected from the group

2 consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups,
3 and phenyl groups, preferably selected from the group consisting of a methyl group
4 and a t-butyl group.

1 53. The mesogens of claims 39 wherein R^2 is selected from the group
2 consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups,
3 and phenyl groups, preferably selected from the group consisting of a methyl group
4 and a t-butyl group.

1 54. The mesogens of claims 45 wherein R^2 is selected from the group
2 consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups,
3 and phenyl groups, preferably selected from the group consisting of a methyl group
4 and a t-butyl group.

1 55. The mesogens of claims 43 wherein R^2 is selected from the group
2 consisting of methyl groups, t-butyl groups, isopropyl groups, secondary butyl groups,
3 and phenyl groups, preferably selected from the group consisting of a methyl group
4 and a t-butyl group.

1 56. The mesogens of claim 46 wherein R and R^3 are selected from the
2 group consisting of hydrogen and a methyl group.

1 57. The mesogens of claim 50 wherein R and R^3 are selected from the
2 group consisting of hydrogen and a methyl group.

1 58. The mesogens of claim 51 wherein R and R^3 are selected from the
2 group consisting of hydrogen and a methyl group.

1 59. The mesogens of claim 55 wherein R and R^3 are selected from the
2 group consisting of hydrogen and a methyl group.

1 60. The mesogens of claim 26 wherein at least one of X or Y is selected

2 from the group consisting of cinnamoyloxy groups.

1 61. The mesogens of claim 55 wherein at least one of X or Y is selected
2 from the group consisting of cinnamoyloxy groups.

1 62. The mesogens of claim 59 wherein at least one of X or Y is selected
2 from the group consisting of cinnamoyloxy groups.